

ARTICLE 10

STREET IMPROVEMENT STANDARDS

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10.1. STREET IMPROVEMENT STANDARDS.

10.1.1. PURPOSE.

The purpose of this Section is to prescribe minimum design standards for new public and/or private streets. These requirements may exceed the standards prescribed by NCDOT for the acceptance of streets into the Secondary System of State Highways.

10.1.2. SIDEWALKS AND OTHER PEDESTRIAN FACILITIES

10.1.2.1 Except as otherwise provided by subsection 10.1.2.2 below, sidewalks, and/or curb and gutter (where required by the street cross-sections for the applicable street cross-sections in the LDSM) are required along the entire frontage of a development located on an existing street, and along both sides of all streets within the development. Sidewalks, curb and gutter, shall comply with all applicable standards in the LDSM and with any additional sidewalk standards that apply in the zoning district (see Article 4: Zoning Districts and Dimensional Regulations).

10.1.2.2 Sidewalks, and/or curb and gutter are not required if the street cross-section in the LDSM for the applicable street classification does not require a sidewalk, and/or curb and gutter. Additionally, the Planning Director, in consultation with the Director of Engineering, may waive or modify the requirement for sidewalks in specific locations on determining the sidewalk:

10.1.2.2.1 Would duplicate an existing greenway or other pedestrian way;

10.1.2.2.2 Is included in a project for which state funding has been allocated or is already included within the City's Capital Improvement Program (CIP);

10.1.2.2.3 Is impractical or infeasible due to the presence of topographic conditions or natural features, such as steep grades that do not allow connections to be made; or

10.1.2.2.4 Would not be located within 500 feet of an existing sidewalk on the same side of the street, provided a public easement for the future installation of a sidewalk is granted, or dedication of additional right-of-way where there is insufficient right-of-way to accommodate a future sidewalk and other required right-of-way improvements.

10.1.2.3 Exempt lots and Lots on Existing Streets Not Requiring Utility Extensions

10.1.2.3.1 For exempt lots, or lots located on existing streets that do not require the dedication of new right-of-way or the extension of utilities (excluding lateral connections) sidewalks, curb and gutter improvements will not be required along the frontage of these lots unless such improvements are already in place adjacent to the lot being developed.

10.1.2.3.2 Where a development has frontage on an existing street with insufficient right-of-way width to accommodate installation of a required sidewalk (and any associated curb and gutter) along the frontage, the developer shall dedicate additional right-of-way for the installation of the required sidewalk or install the sidewalk on the development site within a dedicated public easement running parallel and adjacent to the public street.

10.1.2.3.3 Sidewalks or other pedestrian ways shall be constructed within any [commercial, mixed-use, or multifamily] development consisting of multiple buildings to link buildings in the development with other destinations in the development, including parking areas, open space and other on-site amenities, and other common areas serving the development (e.g., mailbox clusters), and with sidewalks and other pedestrian ways on adjoining lands.

10.1.2.4 Pedestrian Access at Cul-de-Sacs

In all districts except the AG, RE, and HI districts, if a cul-de-sac street is proposed, a minimum eight feet wide pedestrian access shall be provided from the cul-de-sac head or a location on the cul-de-sac street within 200 feet of the cul-de-sac head to an adjoining sidewalk, other pedestrian way, or open space where practicable.

10.1.3. PUBLIC STREETS.

10.1.3.1. Public streets shall be designed and constructed in accordance with the LDSM standards for the applicable street classification type, as determined by the Public Works director in accordance with the Street Classification Standards,

the CRMPO Comprehensive Transportation Plan, and all applicable locally adopted plans.

10.1.3.2. All streets within a proposed development shall conform in alignment to any publicly adopted transportation plan, including the Comprehensive Transportation Plan and all applicable locally adopted plans.

10.1.3.3. Where a proposed subdivision abuts an existing street maintained by the City or NCDOT, the applicant shall dedicate right-of-way necessary to accomplish future road improvements, in accordance with state law. Where the subdivision, or development abuts has is designed to utilize the street for frontage and/or direct access on an existing street maintained by the City or NCDOT, the subdivider or developer shall make any required improvements to the street so it conforms to the LDSM standards for the applicable street classification type, or the CRMPO Comprehensive Plan.

10.1.3.4. New developments shall provide curb, gutter, sidewalks, and tree grates or a planting area between the street and the sidewalk, from the new development to adjacent public streets that provide access to the development, in accordance with the LDSM. All such planting areas and tree grates shall be planted with street trees spaced apart an average of 40 feet or less on center. Road widening, sidewalks, bike lanes, street trees, curb and guttering, utility relocations, and all other related improvements shall be the responsibility of the developer and/or owner. The Planning Director may waive or modify the requirement for sidewalks, or curb and gutter in specific locations in accordance with Section 10.1.2.2 above.

10.1.3.5. Street Classification System.

10.1.3.5.1. Classification of an existing or proposed street not already identified on the Thoroughfare Plan, for the purpose of determining the appropriate design of a roadway or development, or for the purpose of determining the appropriateness of a location for a proposed use, shall be done by the Administrator in consultation with the Director of Transportation.

10.1.3.5.2. The street classification system set forth in Table 10.1-1 is hereby adopted for rural and urban streets. Streets may be further categorized pursuant to the adopted *Cabarrus-*

South Rowan Urban Area Transportation Plan.

Table 10.1-1 Street Classifications

Freeway/Expressway
Major Thoroughfare
Minor Thoroughfare
Collector (residential and non-residential)
Residential Street
Alley

10.1.3.6. Determination Criteria. In determining the classification of a street, factors to be considered include the following existing or proposed features:

10.1.3.6.1. Facility Geometrics, including the number and width of traffic lanes, turning lanes, and parking lanes.

10.1.3.6.2. Access Conditions, including any restrictions on access, the spacing of private accesses, and average lot frontages.

10.1.3.6.3. Traffic Characteristics, including ADT, percentage of trucks, average operating speed, percentage of turning movements, origin-destination characteristics of the traffic, and peak hour characteristics of traffic.

10.1.3.6.4. In applying these factors, the Administrator may refer to § 10.1.2.4.2 and the sources listed therein, which are hereby incorporated by this reference.

10.1.3.7. Designation Authority. Utilizing the criteria of § 10.1.2.5, above, in conjunction with the Thoroughfare Plan Map and the narrative descriptions for each roadway classification provided in Appendix C and the LDSM, Director of Transportation shall determine which of the Thoroughfare Plan designations apply to the street under consideration.

10.1.4. PRIVATE STREETS.

10.1.4.1. Private streets that develop as part of a subdivision, or integrated commercial, industrial, multifamily residential or institutional development shall be designed and constructed to the public street standards set forth in Appendix C of this Ordinance and the LDSM. Private streets (with established right-of-way for public utilities) shall be allowed in TND and PUD developments and should be designed in accordance with the standards of those sections in Article 4. Private streets (with

established right-of-way for public utilities) shall be allowed in single-family residential subdivisions with less than 100 lots subject to City approval. This section shall not include private accessways/driveways as regulated in Article 8.

10.1.4.2. A legally responsible organization (i.e. homeowners association, special district, etc.) as acceptable to the Administrator shall be established to maintain a private street(s). Documents to assure private responsibility of future maintenance and repair by a homeowners association or a special district shall be approved as to form by the Administrator.

10.1.4.3. A private street maintenance agreement, satisfactory to the Administrator and Public Works Director, must be recorded by the developer and/or property owner(s) in the office of the Register of Deeds to ensure proper maintenance. The agreement shall specify lot owners' responsibilities for maintenance of private streets and drainage systems, and shall provide for assessments to finance all maintenance activities. In addition, all property transfer instruments must contain reference to that agreement, as well as a statement indicating if the private street does meet public standards for maintenance and that it will not be considered for public maintenance unless improved by the legally responsible organization to those standards. This agreement shall also specify that unless the street is privately maintained in condition for safe passage of public service and emergency vehicles, the City may provide such maintenance, with charges therefore becoming a lien on the properties served, dividing among them proportionate to their assessed tax valuation.

10.1.4.4. All gated or controlled access subdivisions within the jurisdiction of this Ordinance must provide continuous accessibility to subdivision lots for provision of public service and emergency vehicles. The method of continuous accessibility will be defined within the private street maintenance agreement and shall be approved by the City Manager (and/or designees).

10.1.5. DEVELOPMENT ON PRIVATE STREETS

10.1.5.1. For the proposed development of a lot or lots (including exempt lots) on an existing private street (not maintained by the City), the Engineering Department shall assess the street to determine

whether the street is suitable to accommodate the additional traffic anticipated to be generated by the proposed new development.

10.1.5.2. In making a determination whether an existing private street is suitable to accommodate additional traffic to be generated by new development on that street, the Director of Engineering (or designee) shall assess the condition of the existing private street based on the standard cross section for private streets, found in the City's LDSM. The basis of mitigation requirements for existing gravel streets will be the NC Fire Code (Fire Apparatus Access Roads), NC Powell Bill funding requirements, and current LDSM street cross-sections.

10.1.5.3. If the private street is deemed to be suitable to accommodate additional traffic by the Director of Engineering (or designee), a zoning clearance permit for development will be issued by the City Planning Department. If the street is deemed not to be suitable to accommodate the traffic to be generated by the proposed development, the Director of Engineering (or designee) shall identify what mitigation is required to accommodate the proposed development, including but not limited to: repair or upgrade of the existing street sub-base or surface; repair, addition or enhancement of drainage structures; and or the addition of right-of-way to accommodate necessary improvements. Once the required improvements have been made, the City Planning Department will issue a Zoning Clearance permit for the requested development.

10.1.5.4. Any improvements made to accommodate the proposed new development shall not be deemed as sufficient to satisfy the requirements necessary to dedicate the private street to the City for public maintenance.

10.1.5.5. At the time an assessment of an existing private street is made by the Director of Engineering (or designee), the Director will (upon request) provide the applicant with a composite list of requirements to dedicate the private street for acceptance by the City, in accordance with the City's Policy for street acceptance.

10.1.6. STREET LAYOUT STANDARDS.

This Section establishes general standards regarding the manner in which the public street system of a development is planned.

10.1.6.1. Conformity to adopted Plans. The streets within the proposed subdivision shall conform in alignment to the adopted *Cabarrus-South Rowan Urban Area Transportation Plan* and the related Collector Street Plan. The improvement standards of the Thoroughfare Plan shall not apply, except where such a standard has been specifically set forth in Appendix C of this Ordinance and the LDSM. Whenever a tract to be subdivided embraces any part of a collector street or thoroughfare so designated on a plan approved pursuant to NCGS § 136-66.2, such part of the proposed street or thoroughfare shall be platted by the subdivider in the location and width indicated on such plan. Stub streets within previously platted subdivisions shall be extended and the street system aligned thereto and to the Collector Street Plan.

10.1.7. STREET CONNECTIVITY REQUIREMENTS.

10.1.7.1. The City Council hereby finds and determines that an interconnected street system is necessary in order to protect the public health, safety and welfare in order to ensure that streets will function in an interdependent manner, to provide adequate access for emergency and service vehicles, to enhance non-vehicular travel such as pedestrians and bicycles, and to provide continuous and comprehensible traffic routes. [For reference, see Institute for Transportation Engineers, ITE Transportation Planning Council Committee 5P-8, *Traditional Neighborhood Development Street Design Guidelines* (June 1997)].

10.1.7.2. All proposed streets shall be continuous and connect to existing or platted streets without offset with the exception of cul-de-sacs as permitted and except as provided below. Whenever practicable, provisions shall be made for the continuation of planned streets into adjoining areas.

10.1.7.3. The street network for any subdivision shall achieve a connectivity ratio of not less than 1.40 (see example in Figure 10.1-1).

10.1.7.4. The phrase “connectivity ratio” means the number of street links divided by the number of nodes or link ends, including cul-de-sac heads.

10.1.7.5. A “link” means and refers to that portion of a street defined by a node at each end or at one end. Approved stubs to adjacent property shall be

considered links. However, alleys shall not be considered links.

10.1.7.6. A “node” refers to the terminus of a street or the intersection of two (2) or more streets, except that intersections that use a roundabout shall not be counted as a node. For the purposes of this section, an intersection shall be defined as:

- any curve or bend of a street that fails to meet the minimum curve radius as established in the LDSM; or
- any location where street names change (as reviewed and approved by the Administrator).

10.1.7.7. For purposes of this subsection, the street links and nodes within the collector or thoroughfare streets providing access to a proposed subdivision shall not be considered in computing the connectivity ratio.

10.1.7.8. Residential streets shall be designed so as to minimize the block length of local streets, to provide safe access to residences with minimal need for steep driveways and to maintain connectivity between and through residential neighborhoods for autos and pedestrians.

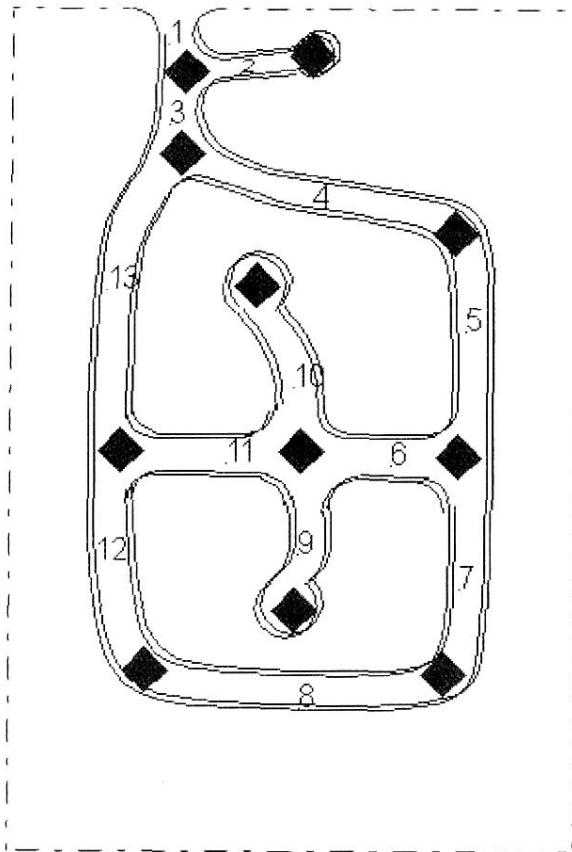
10.1.7.9. Where necessary to provide access or to permit the reasonable future subdivision of adjacent land, rights-of-way and improvements shall be extended to the boundary of the development. A temporary turnaround may be required where the dead end exceeds 500 feet in length. The platting of partial width rights-of-way shall be prohibited except where the remainder of the necessary right-of-way has already been platted, dedicated or established by other means.

10.1.7.10. Exemption. New subdivisions that intend to provide one new cul-de-sac street shall be exempt from the connectivity ratio standard as set forth in this section, provided the Administrator determines that there is:

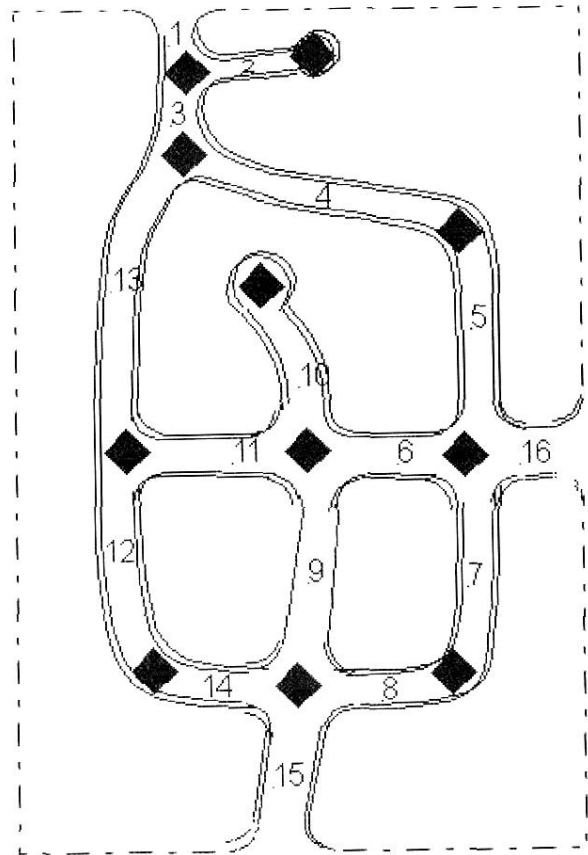
- no options for providing stub streets due to topographic conditions, adjacent developed sites, or other limiting factors; and
- interconnectivity (use of a looped road) within the development cannot be achieved or is unreasonable based on the constraints of the property to be developed.

Figure 10.1-1 Example of Street Connectivity Ratio as applied

Example 1: Subdivision that
does not meet the Ratio
(13 links/11 nodes = 1.18 ratio)



Example 2: Same development
modified to meet Ratio
(16 links/11 nodes = 1.45 ratio)



10.1.8. STREET HIERARCHY.

10.1.8.1. Streets shall be designed to create a hierarchy of streets according to the following standards, provided, however, that the Director of Transportation may recommend design modifications where such modifications are consistent with an adopted access management plan or necessary by reason of natural features or existing development, and do not create safety hazards or increased maintenance costs:

- Local Streets or Local Roads shall intersect with two streets of equal or higher classification, except where otherwise permitted by this Ordinance.
- Alleys shall intersect with Residential Collector Streets, or Residential Streets. ⁽¹⁾
- The Administrator may require a street to be of a collector level design where the anticipated ADT will exceed 3,000 vehicles per day and serves to collect and distribute traffic to the major street system identified on the Thoroughfare Plan.
- Reserve strips and cul-de-sac streets that interfere with street connections needed to serve existing or planned development are prohibited.

10.1.9. DRIVEWAY PERMIT REQUIRED.

A driveway permit is required prior to the construction of any new access point to a publicly maintained street. Said permits are issued by the NCDOT for a connection to any State Highway (19A NCAL §§ 2B.0601-2B.0605). A driveway permit is required in accordance to the standards of Appendix D to connect to a City maintained street. Applicants for preliminary subdivision plat or site plan approval shall submit copies of any driveway permit applications with the application for development approval.

10.1.10. ACCESS MANAGEMENT STANDARDS.

The following standards shall be used to determine the adequacy of lot layouts so that safe and adequate access to each lot is provided. The purpose of regulating the number, spacing and design of vehicular access points is to balance the need for providing access to individual private properties with the need to preserve an adequate level of capacity on the streets providing access. Vehicular access restrictions shall be required to be shown on subdivision plats.

10.1.10.1. Required spacing between adjacent access locations or a proposed access location and an adjacent street intersection are listed in the Land Development Standards Manual (LDSM). For existing lots, driveways shall be located at the point of maximum separation if the standards of this section cannot be met.⁽²⁾

10.1.10.2. Where lots in a proposed subdivision front on a thoroughfare, options for designing access that meets the standards of this Section shall include:

- the use of cross access easements in order to maintain private access points at intervals of no less than 400 feet.
- the use of lower level public streets to provide secondary access in accordance with § 6.6.5.2.

10.1.10.3. Notation shall be provided on an approved final plat to restrict vehicular access for lots along the frontage of thoroughfares, nonresidential collectors or higher-level streets.

10.1.10.4. Secondary Access. Secondary access shall be provided for major subdivisions of 100 or more lots. Secondary access streets shall be routed to avoid hazard areas such as floodways. ⁽¹⁾The secondary access shall be constructed to City of Kannapolis Street cross-section standards and open to public traffic prior to the final platting of the 100th lot.

10.1.10.5. Substandard Access. Where access meeting the spacing guidelines of this Section cannot be provided, the Director of Transportation shall consider the following standards in determining whether a substandard access location may be permitted.

10.1.10.5.1. The Director of Transportation shall first determine whether alternate access is available. Alternate access includes:

- access to another street that meets the standards of the Ordinance; or
- access provided jointly with an adjacent property that will meet the standards of this Ordinance.

10.1.10.5.2. Where alternate access opportunities are determined not to exist, the Director of Transportation may grant a reduction in spacing standards of up to 20%.

10.1.10.5.2.1. If after considering alternatives above, the Director of Transportation determines that no feasible alternatives exist, a substandard access permit may be granted only subject to the exception provisions of § 6.4.17.

10.1.11. EMERGENCY VEHICLE ACCESS.

The purpose of this Section is to ensure that all premises shall be readily accessible for emergency service vehicles, particularly fire-fighting equipment.

10.1.11.1. Emergency Access Required.

For developments which do not have frontage on a public street, access for fire vehicles and emergency apparatus from a public street shall be provided as follows:

10.1.11.1.1. Except as provided by this § 10.1.9, a fire lane shall be required to provide access to any portion of any structure which is more than:

- one hundred and fifty (150) feet from the nearest street right-of-way when the structure is thirty (30) feet or less in height; or
- fifty (50) feet from the nearest street right-of-way when the structure exceeds thirty (30) feet in height.

10.1.11.1.2. When fire vehicles and emergency apparatus are provided access to any portion of a structure more than the distance from a street right-of-way specified in above, by means of either buffer yard area or adjoining property, the requirements of this § 10.1.9 may be waived by the Administrator, after consultation with the fire chief.

10.1.11.1.3. The City shall not be liable for damage to underground utilities beneath fire access lanes caused by firefighting equipment.

10.1.12. VARIANCES.

Requests for variances or relief from any provisions of Section 10.1 shall be covered under Section 6.4.18 of this Ordinance, except that which is allowed under Section 10.1.10.5.